Organizational structures are the basis of everything in an SAP system. In Chapter 3, “Organizational Structures,” we explain generic SAP organizational units and also demonstrate the maintenance-specific organizational units that are required for other procedures.

“Organizational Structures”

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Chapter 3
Organizational Structures

This chapter provides information about the essential elements for maintenance processing in the SAP system: the general organizational units, maintenance-specific organizational units, and work center.

The definition of an organizational structure comprises the following areas: the general SAP organizational units (for example, controlling area, company code, plant, storage location); the definition of maintenance-specific organizational units (for example, location or plant section); and finally, the definition of maintenance work centers (for example, mechanical workshop, electrical workshop, measurement, and control).

3.1 SAP Organizational Units

Organizational units form the basis of all master data and business processes in SAP ERP. In the following sections, you’ll learn about the most important organizational units from a maintenance perspective.

Organizational Units in the SAP Project

If you implement Enterprise Asset Management (EAM), the general organizational units in the SAP system (for example, the company code, controlling area, and plant) are usually already defined. These units were defined when other applications, such as Controlling (CO), Material Management (MM), and so on, were implemented. Therefore, you can only influence the design if EAM is implemented from the outset or if you define separate organizational units from a pure maintenance perspective.
3.1 The Plant from a Maintenance Perspective

The plant is, without doubt, the most important organizational unit for plant maintenance. A plant fulfills several maintenance functions:

- A plant is responsible for planning maintenance activities. In this context, this plant is known as a planning plant. To convert a plant to a planning plant, you use the Customizing function Maintain Planning Plant.

- All of the technical objects to be maintained are physically present in a plant (functional location, equipment, and serial number). In this case, this plant is known as a maintenance plant. A plant becomes a maintenance plant if you create a technical object there. To assign the planning plant responsible for the maintenance plant, you use the Customizing function Assign Maintenance Planning Plant.

- You require a plant with a storage location in which you can store spare parts.

- Furthermore, some technical objects (serial numbers) can be stored in a plant with a storage location.

3.1.2 Maintenance-Specific Organizational Units

Additional maintenance-specific organizational units (either maintenance plant-specific or planning plant-specific) play an important role within a plant (see Figure 3.1).

Technical objects (functional location and equipment) also contain all of the maintenance and planning plant-specific data, which is then copied to notifications and orders. This data is explained in more detail in this chapter.

Work centers perform maintenance tasks or are responsible for such tasks. Work centers relate either to the planning plant or the maintenance plant (see Section 3.2).

A planner group is responsible for planning maintenance tasks and also relates to a planning plant. You maintain planner groups using the Customizing function Define Planner Groups.

Using Planner Groups

You can set up maintenance planner groups, for example, if you want to map work scheduling or individual maintenance planners known by name.

You must use a label to indicate the physical location of a technical object. You’ll always define a location with reference to a maintenance plant. Furthermore, to maintain locations, you’ll use the Customizing function Define Location.

Naming Locations

In practice, either building numbers (for example, F141 or WDF21) or, if they exist, plant coordinates (for example, A01 or K15) are among the most commonly used locations.

You’ll define the responsibilities associated with operating a (production) facility as a plant section. To maintain plant sections, you’ll use the Customizing function Define Plant Sections.

Responsibilities for the Plant Section

In practice, either the plant engineer responsible for the asset or the production area belonging to the asset have proven themselves as plant sections.
3.1.3 Other General Organizational Units
In addition to the maintenance-specific organizational units, other general organizational units are also relevant for EAM.

Company codes
You’ll assign a company code to the plant (see Figure 3.2). The company code is the smallest organizational unit for which a complete, self-contained set of accounts can be drawn up for the purposes of external reporting (“the company”). These accounts record all relevant transactions and generating balance sheets and profit and loss statements.

Controlling areas
The controlling area is an organizational unit within a company for which a self-contained cost accounting can be performed. A controlling area may include one or more company codes.

When you assign a technical object to a maintenance plant, you not only create its company code, but you also determine its controlling area. Similarly, when you assign a work center to a plant, you also assign its controlling area.

Controlling Areas Involved
From a plant maintenance perspective, ideally the controlling area of the technical object and the controlling area of the work center are identical.

You may now be wondering why using controlling areas is a good idea. We’ll explain why in the next section.

3.1.4 Plant-Specific and Cross-Plant Maintenance
For business processes in plant maintenance, you’ll need to differentiate between order planning and execution in the same plant and order planning and execution in different plants.

Plant-Specific Maintenance
In practice, the most frequently encountered situation is where the maintenance requirement is planned in the plant in which it originates, the orders are fulfilled by workshops in the same plant, and the spare parts are stored within the same plant. In Figure 3.3, this plant is known as Plant 1000. The following applies here: maintenance plant = planning plant = spare parts storage.

Cross-Plant Maintenance
In contrast to plant-specific maintenance, other situations may involve more than one plant, for example:
- You may have a plant (for example, Plant 1200 in Figure 3.3) where an asset is maintained (the maintenance plant), but all other functions (planning, order execution, and spare parts storage) are the responsibility of another plant (for example, Plant 1000).
You may have a plant (for example, Plant 1100) where additional partial functions (order execution) are also the responsibility of this plant, but other partial functions (order planning and spare parts storage) are the responsibility of other plants (for example, Plant 1000).

Cross-plant maintenance is not difficult if the maintenance plant of the technical object and the plant of the executing work center are in the same company code.

The same applies if the plants are in different company codes but belong to the same controlling area, which is also a standard scenario.

However, a problem arises if the plants belong to different controlling areas. This case involves a customer–vendor relationship rather than a standard scenario. Therefore, in this case, the maintenance plant (customer) has to trigger purchase orders, and the plant of the work center (vendor) triggers a sales order and its associated invoice. The billing document is entered in turn as an incoming invoice in the maintenance plant—tedious process overall. How can we simplify the process?

Plants in Different Controlling Areas

If you implement cross-plant maintenance and your plants are in different controlling areas, the following approach is recommended:

- In the work center plant, create a cost center for the actual maintenance plant.
- Assign all of the technical objects to the work center plant (as a maintenance plant) and to this cost center.
- Process all maintenance orders in the work center plant.
- Manually issue periodic invoices (for example, monthly) from the work center plant whereby the customer maintenance plant is debited the amount and the cost center is credited the same amount.

This procedure saves you from having to create purchase orders, sales orders, and individual invoices as well as posting individual incoming invoices.

### No Individual Persons as Work Centers

Avoid using individual persons as work centers. You could jeopardize your chances of capacity planning. Furthermore, work center data requires a great deal of maintenance. For person-specific responsibilities, use partner functions (see Chapter 4, Section 4.2.10).

If you nevertheless record work centers for each person, please note the legal regulations for each country. In Germany, for example, you can only do this if you have given your employee representatives a written company agreement in which, among other things, you state that the information will not be used to compare employee performance.

In plant maintenance, work centers are used as the:

- Responsible work center in the equipment master record and functional location master record
- Responsible work center in a maintenance item
- Responsible work center in the header of a task list
- Performing work center in the operations of a task list
- Responsible work center in the notification
Organizational Structures

Need for Work Centers
Work centers are the individual master records that you must create in order to use EAM. You can implement business processes, for example, without technical objects (functional locations, equipment, and so on), but not without work centers.

Creating a Work Center
You can use Transaction IR01 to maintain work centers. In this transaction, you would first assign a work center number and then assign the work center to a plant.

Choice of Work Center Numbers
Frequently, you’ll have to specify the work center in EAM processing. Therefore, you should keep work center numbers as short as possible (for example, M for mechanical workshop, E for electrical workshop, and so on).

Basic data
The work center contains information that is essential for EAM processing (see Figure 3.4). Work centers contain basic data. You maintain this data on the Basic Data tab.

Characteristics of the Task List Usage
When maintaining basic data for a work center, make sure that you set the task list usage to 004 (maintenance task lists) or 009 (all task list types), so that the work center can be used in EAM processing.

Furthermore, the standard value key must be set to “SAP0,” so that standard values such as setup times or machine times are not required later.

Work centers contain default values that are copied into the operations or referenced when creating maintenance task lists and maintenance orders. Referencing means that the data cannot be changed in the maintenance task list. You maintain default values on the Default Values tab. The most important default value is the control key via which you can subsequently control the following in the order:

- Whether the operation is to be part of costing
- Whether the operation is to be scheduled
- Whether the operation is to generate capacity requirements
- Whether a confirmation is expected for the operation
- Whether the operation should be processed externally
- Whether service specifications are to be set up in the operation

You maintain the control key in Customizing using the function Maintain Control Key.

Using the Control Key
Using the control key, you can control in detail the business functions that an operation should have (cost, print, confirm, assign externally, schedule, and so on).

You’ll require at least two control keys, namely, a key for internal processing and a key for external processing. You can use other control keys as required.

You should always define the control key in the work center as a default value so that you do not always have to manually enter it in the task list and order.
Scheduling data

Work centers contain scheduling data required for lead time scheduling. You maintain scheduling data on the Scheduling tab (see Figure 3.5).

**Figure 3.5 Scheduling**

### Formula for the Duration of Internal Processing

If you want to schedule the orders later, your work center requires a formula in the Duration of Internal Processing field. This formula must point to the DAUNO field, that is, to the duration from the operation. The formula SAP004 is defined in the standard SAP version.

You can check or define this formula using the Customizing function Define Formula Parameters for Work Centers.

### Available capacity

Work centers contain available capacity data required for capacity planning. Available capacity specifies which service provides capacity for each work day. A capacity is always assigned to a work center and, in plant maintenance, is generally expressed in hours per week. The capacity data is maintained on the Capacities tab (see Figure 3.6).

**Figure 3.6 Capacities**

#### Formula for the Requirements of Internal Processing

If you subsequently want to execute capacity planning for your work center, your work center requires a formula in the field Requirements of Internal Processing. This formula must point to the ARBEI field, that is, the work from the operation. In the standard system, this formula is SAP008.

You can check or define this formula using the Customizing function Define Formula Parameters for Work Centers.

In the work center, the available capacity is maintained on the Capacities tab by clicking the button. Figure 3.7 shows which information you can specify for the available capacity.

**Figure 3.7 Available Capacity**

Most required details, for example, the **Work Start**, **Work Finish**, **Length of Breaks**, **Number of Individual Capacities** (number of craftsmen) fields, are not critical and are easily determined.

If you work in different time periods with different staff assignments, you can maintain intervals and also define multilayer models.

The rate of capacity utilization is critical: This rate specifies (in %) the portion of gross capacity available to the craftsmen (net) for planned orders. Several factors can lower the capacity utilization rate, such as:

- Additional, necessary personal time (restroom breaks, unplanned breaks, work meetings, and so on)
- Illness
- Leave
- Unplanned orders

The proportion of unplanned orders can only be roughly estimated and is thus a critical factor in maintenance.
Rates of Capacity Utilization in Practice
Without considering unplanned orders, a rate of capacity utilization of between 65% and 75% is most common in practice.
To account for unplanned orders, you have two options:
- You can consider them in the capacity utilization rate, which is then reduced according to the proportion of unplanned orders to a value between 30% and 50%.
- You can reserve some personnel beyond the number of individual capacities specified in the available capacity (that is, the number of craftsmen) and deploy them only for unplanned orders, so that the data specified in the available capacity is available only for planned orders.

Costing
Work centers contain costing data that enables you to cost operations; this data is maintained on the Costing tab (see Figure 3.8).
You can check or define this using the Customizing function Define Formula Parameters for Work Centers.

Prerequisites for Costing
If you subsequently want to perform costing for your work center, your work center requires the following:
- A cost center
- An activity type
- A formula in the field Requirements for Internal Processing. This formula must point to the ARBEI field, that is, the work from the operation. In the standard system, the formula SAP008 is used.

Chapter 6, Section 6.2.8, provides information on how to define the associated allocation record in Controlling.
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